Complete Summary

TITLE

Craniotomy: mortality rate.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

Measure Domain

PRIMARY MEASURE DOMAIN

Outcome

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure is used to assess the number of deaths per 100 discharges with a diagnosis-related group (DRG) code for craniotomy (DRG 001, 002, 528, 529, 530, and 543), with and without comorbidities and complications.

Risk adjustment for clinical factors, or at a minimum 3M™ All-Patient Refined Diagnosis-Related Groups (APR-DRGs) with Risk-of-Mortality subclass, is recommended because of the confounding bias for craniotomy. In addition, little evidence exists supporting the construct validity of this indicator.

RATIONALE

About 36% of personal health care expenditures in the United States go towards hospital care, and the rate of growth in spending for hospital services has begun to increase following a half a decade of declining growth. Simultaneously,

concerns about the quality of health care services have reached a crescendo with the Institute of Medicine's series of reports describing the problem of medical errors and the need for a complete restructuring of the health care system to improve the quality of care. Policymakers, employers, and consumers have made the quality of care in U.S. hospitals a top priority and have voiced the need to assess, monitor, track, and improve the quality of inpatient care.

Craniotomy for the treatment of subarachnoid hemorrhage or cerebral aneurysm entails substantially high post-operative mortality rates. Better processes of care may reduce mortality for craniotomy, which represents better quality care.

Craniotomy is a complex procedure. Providers with high rates have better outcomes, although this may be an artifact of patient selection.

PRIMARY CLINICAL COMPONENT

Craniotomy; mortality

DENOMINATOR DESCRIPTION

All discharges, age 18 years and older, with diagnosis-related group (DRG) code* for craniotomy (DRG 001, 002, 528, 529, 530, and 543) with and without comorbidities and complications. Exclude patients with a principal diagnosis of head trauma, missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

*Refer to Appendix A of the original measure documentation for details.

NUMERATOR DESCRIPTION

Number of deaths with diagnosis-related group (DRG) code* for craniotomy (DRG 001, 002, 528, 529, 530, and 543), age 18 years and older, with and without comorbidities and complications

*Refer to Appendix A of the original measure documentation for details.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

External oversight/State government program
Internal quality improvement
Quality of care research

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Population Rate (2002): 7.35 per 100 discharges at risk.

EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Patients, age 18 years or older, discharged from the hospital who had a craniotomy (see the "Denominator Inclusions/Exclusions" field)

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

All discharges, age 18 years or older, with diagnosis-related group (DRG) code* for craniotomy (DRG 001, 002, 528, 529, 530, and 543) with and without comorbidities and complications.

*Refer to Appendix A of the original measure documentation for details.

Exclusions

Exclude patients with a principle diagnosis of head trauma, missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

DENOMINATOR (INDEX) EVENT

Institutionalization
Therapeutic Intervention

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Number of deaths with diagnosis-related group (DRG) code* for craniotomy (DRG 001, 002, 528, 529, 530, and 543), age 18 years or older, with and without comorbidities and complications

*Refer to Appendix A of the original measure documentation for details.

Exclusions

Unspecified

NUMERATOR TIME WINDOW

Institutionalization

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Not Individual Case

OUTCOME TYPE

Clinical Outcome

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a lower score

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)
Case-mix adjustment
Risk adjustment method widely or commercially available

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by hospitals, age groups, race/ethnicity categories, sex, and payer categories.

Risk adjustment of the data is recommended using, at minimum, age, sex, and 3M™ All-Patient Refined Diagnosis-Related Groups (APR-DRGs) with Risk-of-Mortality subclass*.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

Note: Information on the 3M™ APR-DRG system is available at http://www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml.

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a

quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

Identifying Information

ORIGINAL TITLE

Craniotomy mortality rate (IQI 13).

MEASURE COLLECTION

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

MEASURE SET NAME

Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators

DEVELOPER

Agency for Healthcare Research and Quality

ADAPTATION

Measure was not adapted from another measure.

RELEASE DATE

2002 Jun

REVISION DATE

2004 Dec

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

MEASURE AVAILABILITY

The individual measure, "Craniotomy Mortality Rate (IQI 13)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization." An update of this document is available from the Quality Indicators page at the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Inpatient quality indicators: software documentation [version 2.1, revision 4] - SPSS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 45 p. (AHRQ Pub.; no. 02-R208). This document is available from the Agency for Healthcare Research and Quality (AHRQ) Web site.
- AHRQ quality indicators. Inpatient quality indicators: software documentation [version 2.1, revision 4] - SAS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 45 p. (AHRQ Pub.; no. 02-R208). This document is available from the AHRQ Web site.
- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the AHRQ Web site.
- AHRQ inpatient quality indicators - interpretive guide. Irving (TX): Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available from the AHRQ Web site.
- UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4). This document is available from the AHRQ Web site.

NQMC STATUS

This NQMC summary was completed by ECRI on December 4, 2002. The information was verified by the Agency for Healthcare Research and Quality on December 26, 2002. This NQMC summary was updated by ECRI on April 7, 2004, August 19, 2004, and most recently on March 4, 2005. The information was verified by the measure developer on April 22, 2005.

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